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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/435,373	11/05/1999	SHIGEKI OUCHI	RCOH-1020	5161

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EXAMINER

LE, BRIAN Q

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 07/31/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/435,373

Applicant(s)

OUCHI, SHIGEKI

Examiner

Brian Q Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).
3. Claims 1 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Abe et al. U.S. Patent No. 6,289,121.

Referring to claim 1, Abe teaches a method of determining a title from a document image (FIG 2 and FIG 4), comprising:

Dividing the document image into minimal circumscribing rectangles which contain a character image (column 3, line 32-33, line 39-42);

Recognizing characters in said minimal circumscribing rectangles (column 3, line 42-45); and

Optical character recognition converts the text image into the character data (column 3, line 33-35).

Determining a title of the document image based upon a likelihood of each of said minimal circumscribing rectangles containing a title (column 3, line 39-42), said likelihood being determined based upon information obtained during said character recognition (column 3, line 35).

For claim 19, please refer back to claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-12, 15-18, 20-30, and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. U.S. Patent No. 6,289,121 as applied to claim 7 above, and further in view of Katsuyama et al. U.S. Patent No. 6,035,061.

Referring to claim 2, Abe teaches that an image document can be break down to points (articles) (FIG 8, S404). However, Abe didn't disclose a likelihood is expressed in a sum of points in the determination of the areas. Nevertheless, Katsuyama teaches the concept of expressing (display/histogram) the sum of black pixels (likelihood) (column 11, line 4-43) in the determination of areas on the documents. Therefore, it would have been obvious for a method of determining a title from a document image wherein said likelihood is expressed in a sum of points based said information to further the analysis and the detection of a title because both references are directed to determining areas on a

document and locating titles. Further, Katsuyama provides an alternative to the process of Abe in the location of areas of a document.

For claim 3, Abe teaches that information includes characteristic on font (FIG 9, S507).

Referring to claim 4, Abe discloses font characteristic is determined on a frequency of a particular font type (column 6, line 10, line 58-59).

For claim 5, Abe also discloses character recognition further includes an act of matching said characters with a set of predetermined words, said predetermined words indicating said title (column 4, line 23-31).

And claim 6, Abe describes a result of said matching with said predetermined words (column 5, line 25-27).

Claim 7, Abe shows information includes a number of said characters (character code) (column 3, line 50-52).

Referring to claim 8, Abe teaches the method of determining a title from a document image using a concept about threshold (column 4, line 49). However, Abe didn't specifically disclose the concept of comparing characters to a predetermined maximal threshold number. However, Katsuyama teaches the concept of comparing characters to a predetermined threshold number (column 35, line 2-5). Therefore, it would have been obvious to determine a title from a document image wherein said number of said characters is compared to a predetermined maximal threshold number in order to gather more information of about title properties.

Referring to claim 9, Abe failed to mention an assurance level for character recognition. However, Katsuyama teaches an assurance level of said character recognition (column 7, line 11-17). Therefore, it would have been obvious for a method of determining a title from a document image wherein said information includes an assurance level of said character recognition to improve the data integrity during character recognition process.

And to claim 10, Katsuyama further teaches an assurance level is compared to a predetermined maximal threshold ("at most") value (column 7, line 11-17). Therefore, it would have been obvious to choose a predetermine threshold value to be minimum as to be a design choice.

For claim 11, Abe teaches the method of determining a title from a document wherein said information includes layout characteristics (column 4, line 50-51 and column 6, line 38-39).

And to claim 12, Abe teaches the method of determining a title from a document image wherein said information includes size (column 3, line 47-48). However, Abe failed to teach that information includes centering and underlining. However, Katsuyama teaches information wherein includes centering and underlining (column 6, line 0-5 and column 22, line 37-40).

Referring to claim 15, Abe failed to disclose the method of determining a title from a document image wherein said information includes a ratio between a length and a height of each of said circumscribing rectangles. However, Katsuyama teaches the concept wherein information includes a ratio between a length and height of each of said

circumscribing rectangles (column 22, line 0-9). Therefore, it would have been obvious for a method to determine a title wherein information includes ratio between length and height of each circumscribing rectangles to further study the size information of surrounding rectangles.

For claim 16, Able also failed to teach the method of determining a title from a document image according wherein said information includes a ratio between a summed width of said characters and a corresponding one of said circumscribing rectangles. However, Katsuyama also teaches information wherein includes a ratio between a summed width (column 10, line 67 and column 11, line 0-6) of said characters and a corresponding one of said circumscribing rectangles (column 23, line 0-10 and column 32, line 27-29). Therefore, it would have been obvious for a method determines a title from a document image wherein said information includes a ratio between a summed width of said characters and a corresponding one of said circumscribing rectangles to further study the width information between circumscribed rectangles.

For claim 17, Abe further failed to disclose the method wherein likelihood is adjusted according to a type of said image documents. However, Katsuyama also teaches that likelihood can be adjusted according to a type of said image documents (column 8, line 10-22). Therefore, it would have been obvious for a method determine title from an image document wherein likelihood can be adjusted according to a type of said image document because the method can reused the existing template of title extraction to extract the current title faster.

Also for claim 18, Abe failed to teach the method of determining a title from a document image wherein said title is combine with a keyword. However, Katsuyama teaches a method wherein said title can be combined with a keyword (column 2, line 55-59).

For claims 20-30, please refer back to explanation of claims 2-12 sequentially.

Also for claims 33-36, please refer back to claims 15-18 sequentially.

6. Claims 13, 14, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. U.S. Patent No. 6,289,121 and Katsuyama et al. U.S. Patent No. 6,035,061 as applied to claim 2 above, and further in view of Chen et al. U.S. Patent No. 5,745,600.

Referring to claim 13, the combination of Abe and Katsuyama failed to disclose a method of determining a title from a document image wherein said information indicates whether or not said characters end in a noun form. However, Chen teaches a method that identifies word wherein characters end in a various forms (column 15, line 10-55). Therefore, it would have been obvious for to determine whether characters are noun or other forms of the word to generate information about the title of document images because each reference uses bounding boxes to located words and and makes determinations about those words and determing the for of word allows easier verification of the areas of a document.

And to claim 14, Abe also failed to disclose the method of determining a title from a document image wherein said information indicates whether or not said characters end in a set of predetermined suffixes. Again, Chen further teaches a method that

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identifies world wherein information indicates whether or not said characters end in a set of predetermined suffixes or prefixes (column 15, line 45-55).

For claims 31 and 32, please refer back to claims 13 and 14 sequentially.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to image dividing methods in general:

U.S. Pat. No. 5,892,843 to Zhou et al, teaches title, caption and photo extraction from scanned document images.

U.S. Pat. No. 6,327,387 to Naoi et al, teaches apparatus and method for extracting management information from image.

U.S. Pat. No. 6,137,905 to Takaoka, teaches a system for document orientation discrimination

U.S. Pat. No. 6,173,073 to Wang, teaches a system for analyzing table images.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q Le whose telephone number is 703-305-5083.

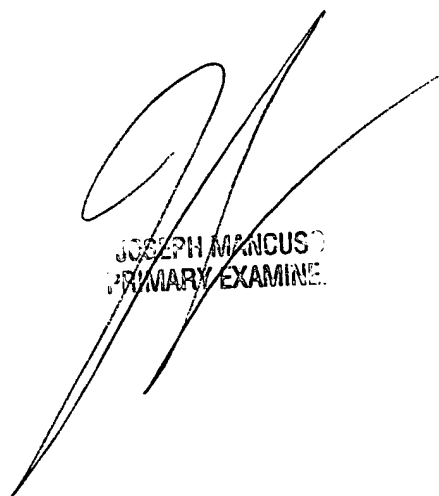
The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5397 for regular communications and 703-308-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC Customer Service whose telephone number is 703-306-0377.

BL
July 26, 2002



JOSEPH MANCUSO
PRIMARY EXAMINEE